

## Executive Summary

### Section 1. Introduction

In 1999, the legislature approved and the governor signed the Marine Life Protection Act (MLPA; Stats.1999, Chapter 1015). The MLPA requires that the Department of Fish and Game (Department) prepare and present to the Fish and Game Commission (Commission) a master plan that will guide the adoption and implementation of a Marine Life Protection Program, which includes a statewide network of marine protected areas (MPAs). Other recent related legislation includes the Marine Life Management Act of 1998 (MLMA; Stats. 1998, Chapter 1052), Marine Managed Areas Improvement Act of 2000 (MMAIA; Stats. 2000, Chapter 385), and California Ocean Protection Act of 2004 (COPA; Stats. 2004, Chapter 719).

This legislation continues a long tradition of legislation addressing the conservation of California's diverse coastal and marine wildlife and habitats. Since World War II especially, pressures on these resources have grown as fishing effort and ability have increased and as coastal development has transformed coastal habitats and generated pollutants. In the last 35 years, both federal and state government programs have made an effort to address, if not solve, all of these problems. Marine and coastal wildlife populations also are affected by environmental factors, such as short and long-term shifts in oceanographic conditions, the total effect of which are not clearly understood.

Since passage of the MLMA in 1998, restrictions on commercial and recreational fishing have grown as fishery managers have sought to maintain sustainable fisheries in the face of uncertainty and of declining fish populations. The MLMA reflects shifts in the goals of fishery management away from a single-species focus on maximum yields toward sustainable yields and an ecosystem perspective.

The MLPA reflects prevailing scientific views regarding the role of MPAs in conserving biological diversity, protecting habitats, aiding in the recovery of depleted fisheries, and promoting recreation, study, and education. There remains disagreement whether MPAs, particularly no-take marine reserves, provide direct benefits to fisheries. These scientific viewpoints are discussed in more detail in this document.

In August 2004, the California Resources Agency, California Department of Fish and Game, and Resources Legacy Fund Foundation launched an effort to implement the MLPA, after two unsuccessful earlier attempts. This MLPA Initiative established an MLPA Blue Ribbon Task Force, together with a Master Plan Science Advisory Team (science team) and stakeholder advisory groups, to oversee the completion of several objectives. The first of these objectives was a master plan framework, which included guidance, based on the MLPA, for the development of alternative proposals of MPAs statewide, beginning in an initial central coast study region. The framework is the backbone of this document, the master plan, which also includes specific recommendations for MPAs in each region. The master plan is expected to be an evolving document, which will be modified based on lessons learned in various regional processes and through monitoring and evaluation of MPAs throughout the State. Initial modifications have been incorporated subsequent to the completion of the first regional design process in the central coast.

## **Section 2. Process for Designing Alternative Marine Protected Area Network Proposals**

Rather than attempting to design a single network for the entire state at one time, the MLPA Initiative envisions the assembly of a statewide network by 2011 from a series of regional processes, beginning with an area along the central coast. The master plan framework was the primary guide for that process. The master plan (developed from the framework) describes a series of activities, most of which to be undertaken by regional stakeholder groups and sub-teams of the statewide science team.

The overall aim of this four-step process is developing alternative MPA proposals for consideration by the Department, selection of a preferred alternative by the Department, and adoption of a proposal by the Commission. These steps are:

1. Regional planning, starting with the identification of study regions, moving through the preparation of regional profiles and additional advice, designing regional goals and objectives, analyzing existing MPAs and other management, and ending with the identification of alternative approaches to networks and potential MPA sites;
2. MPA planning, in which proposals for packages of MPAs are developed, after evaluation of existing and new MPAs and other management activities;
3. Evaluating the proposals, in which either the MLPA Blue Ribbon Task Force evaluates the proposals and forwards a package to the Department or the Commission reviews the proposals and provides direction to the Department, which conducts a feasibility analysis, prepares a preferred alternative, develops initial regulatory documents, and forwards this information to the Commission;
4. Commission action on MPA proposals, which includes preparing regulatory analyses (including California Environmental Quality Act review), public testimony, and action by the Commission.

It is expected that the Master Plan and the process described above will be reviewed upon completion and that changes will be made based on lessons learned. This adaptive use of the master plan will help facilitate future regional processes and statewide implementation.

## **Section 3. Considerations in the Design of MPAs**

Achieving the MLPA's goals and objectives to improve a statewide network of MPAs will require consideration of a number of issues, each of which is discussed in this section.

### *Goals of the Marine Life Protection Program*

The MLPA identifies a set of goals for the Marine Life Protection Program including: conservation of biological diversity and the health of marine ecosystems; recovery of wildlife populations; improving recreational and educational opportunities consistent with biodiversity conservation; protection of representative and unique habitats for their intrinsic value; ensuring that MPAs have defined objectives, effective management and enforcement, and are designed on sound science; and ensuring MPAs are managed, to the extent possible as a network.

The MLPA notes that a variety of levels of protection may be included in MPAs and that the above program shall include several elements. These are: an “improved marine life reserve component”; specified objectives and management and enforcement measures; provisions for monitoring and adaptive management; provisions for educating the public and encouraging public participation; a process for the establishment, modification, or abolishment of existing or future new MPAs.

Each regional preferred alternative submitted by the Department to the Commission must include recommended no-take areas that encompass a representative variety of marine habitat types and communities across a range of depths and conditions and avoid activities that upset the natural functions within reserves. Collectively the regional alternatives must include replicates of similar types of habitats in each biogeographical region to the extent possible.

### *MPA Networks*

The MLPA calls for improving and managing the state’s MPAs as a network, to the extent possible. The MLPA itself does not define a network. However, there are two common approaches to MPA networks: MPAs linked biologically and/or oceanographically, and MPAs linked through administrative function. Biological and oceanographic linkages are described in more detail in this section. At a minimum, the statewide network should function at an administrative level which reflects a consistent approach to design, funding and management.

### *Science Advisory Team Guidance on MPA Network Design*

Explained in more detail below, the science team for the MLPA Initiative developed guidance regarding the design of MPA networks. This guidance, which is expressed in ranges for some aspects such as size and spacing of MPAs, should be the starting point for regional discussions of alternative MPAs. Although this guidance is not prescriptive, any significant deviation from it should be consistent with both regional goals and objectives and the requirements of the MLPA. The following guidelines are linked to specific objectives and not all guidelines will necessarily be achieved by each MPA:

- The diversity of species and habitats to be protected, and the diversity of human uses of marine environments, prevents a single optimum network design in all environments.
- To protect the diversity of species that live in different habitats and those that move among different habitats over their lifetime, every ‘key’ marine habitat should be represented in the MPA network.
- To protect the diversity of species that live at different depths and to accommodate the movement of individuals to and from shallow nursery or spawning grounds to adult habitats offshore, MPAs should extend from the intertidal zone to deep waters offshore.
- To best protect adult populations, based on adult neighborhood sizes and movement patterns, MPAs should have an alongshore extent of at least 5-10 km (3-6 m or 2.5-5.4 nm) of coastline, and preferably 10-20 km (6-12.5 m or 5.4-11 nm). Larger MPAs would be required to fully protect marine birds, mammals, and migratory fish.
- To facilitate dispersal among MPAs for important bottom-dwelling fish and invertebrate groups, based on currently known scales of larval dispersal, MPAs should be placed within 50-100 km (31-62 m or 27-54 nm) of each other.

- To provide analytical power for management comparisons and to buffer against catastrophic loss of an MPA, at least 3-5 replicate MPAs should be designed for each habitat type within each biogeographical region.
- To lessen negative impact while maintaining value, placement of MPAs should take into account local resource use and stakeholder activities.
- Placement of MPAs should take into account the adjacent terrestrial environment and associated human activities.
- To facilitate adaptive management of the MPA network into the future, and the use of MPAs as natural scientific laboratories, the network design should account for the need to evaluate and monitor biological changes within MPAs.

### *Consideration of Habitats in the Design of MPAs*

The MLPA calls for protecting representative types of habitat in different depth zones and environmental conditions. The science team generally confirmed that all but one of the habitats identified in the MLPA occur within state waters: rocky reefs, intertidal zones, sandy or soft ocean bottoms, underwater pinnacles, kelp forests, submarine canyons, and seagrass beds. They noted that seamounts do not occur within state waters. The science team also noted that rocky reefs, intertidal zones, and kelp forests are actually broad categories that include several types of habitat.

The science team identified five depth zones which reflect changes in species composition: intertidal, intertidal to 30 meters, 30 meters to 100 meters, 100 meters to 200 meters, and deeper than 200 meters. The science team also called for special delineation of estuaries as a critical California coastal habitat. Finally, the science team recommended expanding the habitat definitions to include ocean circulation features, principally upwelling centers, freshwater plumes from rivers, and larval retention areas.

### *Species Likely to Benefit from MPAs*

The MLPA requires the identification of species likely to benefit from MPAs. Identifying these species may also assist in identifying habitat areas that can contribute to achieving the goals of the MLPA. The Department prepared a list of such species, which appears in Appendix G. The Department will work with the science team in refining this list for each region. This will include identifying species on the list that are in direct need of consideration when designing MPAs, as opposed to those that may benefit but are not in immediate need of additional protection.

### *Geographical Regions*

The MLPA requires that representative habitats be included, to the extent possible, in more than one marine reserve in each biogeographical region. The MLPA identifies the following three biogeographical regions:

- The area extending south from Point Conception,
- The area between Point Conception and Point Arena, and
- The area extending north from Point Arena.

The MLPA also authorizes a master plan science team to modify these regions. A variety of options for the possible definition of biogeographical regions were presented to the Blue Ribbon Task Force:

- 1) The three biogeographical regions defined in the MLPA;
- 2) The two *biogeographic provinces* recognized by many scientists with a boundary at Point Conception;
- 3) The four *marine regions* identified by the Master Plan Team convened by the Department in 2000, with boundaries at Pt. Conception, Pt. Año Nuevo, and Pt. Arena; and
- 4) The biogeographical regions recognized by scientists who have identified borders based on species distributional patterns or on abundance and diversity data with boundaries at Pt. Conception, Monterey Bay and/or San Francisco Bay, and Cape Mendocino.

Accepting the strong scientific consensus of a major biogeographical break at Pt. Conception, the Blue Ribbon Task Force confirmed that two biogeographical regions exist along the California coast for purposes of implementing the Marine Life Protection Act. The more refined information on other breaks will be useful in designating study regions and in designing a statewide network of MPAs.

#### *Types of MPAs and MMAs*

The MLPA recognizes the role of different types of MPAs in achieving the objectives of the Marine Life Protection Program. Three types of MPAs are defined by the Marine Managed Areas Improvement Act: state marine reserve, state marine park, and state marine conservation area. Each designation provides authority for different levels of restriction on human uses and includes various objectives. The MLPA sets other requirements for the use of state marine reserves. These differences are briefly described below and their potential use in zoning of areas is discussed. In addition, one type of marine managed area (MMA) is recommended for use in locations where waterfowl hunting may occur (primarily estuarine areas). This MMA is a state marine recreational management area and may specifically allow hunting while protecting subtidal marine resources.

#### *Setting Goals, Objectives, and Design Considerations for MPAs*

The MLPA requires that all MPAs have clearly identified goals and objectives and suggests several possible objectives. The MPA design process will begin with setting regional goals and objectives that are consistent with the MLPA, then identifying goals and objectives for individual MPAs. It is recommended that these regional goals be substantially similar, if not the same, to the goals of the MLPA. Once set, goals and objectives will influence crucial decisions regarding size, location and boundaries, as well as management measures and the focus of monitoring and evaluation programs. The goals and objectives of other complementary programs will be consulted, such as the Nearshore Fishery Management Plan adopted under the Marine Life Management Act and the Abalone Recovery and Management Plan. In addition, considerations for the design of MPA networks may differ within each region. Design considerations will be developed which complement the goals and objectives and specify items to be taken into account while preparing alternatives.

### *Enforcement and Public Awareness Considerations in Setting Boundaries*

Public acceptance and understanding of and compliance with MPA regulations can be increased if certain criteria are considered in the design of MPAs. First, boundaries should be clear, well-marked where possible, recognizable, measurable and enforceable. Ease of access to MPAs may influence the level of enforcement activity required to ensure compliance and protection. Siting MPAs where there are other special management programs such as national marine sanctuaries may enhance enforceability. In its feasibility analysis, the Department will place an emphasis on boundaries and regulations that are easily understood and enforced.

### *Information Supporting the Design of MPAs*

The MLPA calls for the use of the “best readily available science” in designing and managing MPAs. Baseline data needs will be identified in regional profiles and MPA management plans, and the master plan offers several examples of these types of information. The MLPA also calls for soliciting information from local communities and interested parties regarding the marine environment, the history of fishing, water pollution, and the socioeconomic and environmental impacts of MPA alternatives. Considerations in evaluating the economic value of marine ecosystems and the economic effects of specific MPAs are described.

### *Other Programs and Activities Other than Fishing*

Current and anticipated human activities that may affect representative habitats and focal species in each region and at each MPA site should be described. Where non-fishing activities may have a significant impact, a proposal for an MPA may include recommendations to appropriate agencies for reducing the impacts of those activities. Such recommendations generally should be referred also to the California Ocean Protection Council established under the California Ocean Protection Act of 2004.

## **Section 4. Management**

The MLPA requires that California’s MPAs have effective management measures. The initial focus for meeting this requirement is the preparation of a regional management plan, a suggested outline of which is found in this section. Besides generally guiding day-to-day management of MPAs, a management plan also distills the reason for key elements of MPAs that should be monitored, evaluated, and revised in response to new information and experience. A management plan should describe the allocation of responsibility to various government agencies, non-governmental organizations and industry groups. Where possible, management of MPAs should rely on collaboration among groups, including volunteer efforts. Finally, advisory committees formed for the purpose of designing MPAs in a region may serve important purposes in the implementation of MPAs. Likewise, a statewide MPA advisory committee that can assist with implementation should be considered. Much of the material required for a management plan will be developed during the regional design of MPAs.

## **Section 5. Enforcement**

The MLPA identifies enforcement as one of the chief deficiencies in California's existing MPAs. Therefore, the MLPA requires that the Marine Life Protection Program provides for adequate enforcement and includes enforcement measures for all MPAs, and that the master plan include recommendations for improving enforcement.

A general discussion of the capacities of the Department's enforcement program as well as the programs of other state and federal agencies, with which the Department may collaborate is included. A set of enforcement program objectives, including cooperative efforts, community involvement, education and operations is identified.

## **Section 6. Monitoring and Adaptive Management of MPAs**

Like the Marine Life Management Act, the MLPA calls for adaptive management. The MLPA requires that the master plan include recommendations for monitoring and evaluation in selected areas for adaptive management. The MLPA also requires that all MPAs have measurable goals and objectives.

A process for developing monitoring and evaluation programs in different regions is described. A communications plan that will help ensure that results of monitoring are provided to decision makers and the public in terms that they can understand and act upon should be developed. A comprehensive review of monitoring results and performance should be conducted every three to five years. If monitoring results are not consistent with the goals and objectives of an individual MPA, the region, and overall network, recommendations should be developed for altering the MPAs and their management.

General considerations in identifying indicators as part of a monitoring and evaluation program, and specific examples of indicators for biophysical, socioeconomic and governance objectives are discussed. Collaborative monitoring efforts with fishermen and other groups are encouraged.

## **Section 7. Funding**

The MLPA requires that the master plan include recommendations for funding MPA management activities and for implementing the Marine Life Protection Program. The inclusion of financing considerations in management plans for regional MPAs is discussed and examples of various sources of funding are provided. Contractors to the MLPA Initiative also produced a report on long-term costs and funding options for implementing the MLPA (Appendix L and N).

## **Section 8. Regional MPA Management Plans**

For each of four coastal regions and the San Francisco Bay region detailed plans for the management of MPAs are provided. Where a region has not yet been considered within the scope of the MLPA, a proposed completion date and simple timeline are provided. For each completed region, details on specific MPA locations, boundaries, and regulations are provided. Information on the overall monitoring, enforcement, outreach and management plans are

included. These plans also include cost estimates and potential funding sources and, if appropriate, timelines for implementation of new or modified MPAs in each region.

## **Appendices**

A separate volume includes appendices with more extensive information on a number of issues raised.